

Remarks

Applicants note that the Examiner has constructively elected claims 1-17, 19-15 and 29-56, and has withdrawn claims 26-28 and 57-59 from consideration. Any non-examined claims are reserved for filing in future applications.

The Examiner has rejected independent claims 1, 23, 29, 30 under 35 U.S.C. §112, citing a lack of support for controlling “temporal variations” in correspondence with the numerically simulated temperature variation profiles. This rejection is respectfully traversed. Applicants note that the specification does indeed explain that “temperature variations... are controlled in correspondence with (correlating) temperature variation profiles...” (bot. p. 3 – top p. 4). Applicants also respectfully note that the same page of the specification also discusses these controllable temperature variations occurring over time, and references Figure 3, showing a plot of the temperature variations as a function of time. (p. 3, 3rd paragraph).

The Examiner has rejected independent claims 1, 23, 29, 30 under 35 U.S.C. §103(a) as obvious over Schmitz (“MOVPE growth of InGaN on sapphire using growth initiation cycles”) in view of Burmeister (U.S. Patent No. 3,617,371), and further in view of Jinguji (JP 61-297617) or Ram et. Al (“Modeling Furnace Operations Using Simulation and Heuristics”). This rejection is respectfully traversed.

As the Examiner has acknowledged, the combination of Schmitz and Burmeister do not teach controlling the temporal variation of at least one process temperature in correspondence with a numerically simulated temperature variation profile. Accordingly, claims 1, 23, 29, 30 are not obvious in light of the combination of these two references alone.

With respect to the addition of the Jinguji or Ram references, as a preliminary matter, applicants note that, in order to combine the Schmitz and Burmeister references

with either the Jinguji reference or the Ram reference, there must be some suggestion or motivation for one skilled in the art to look to these other references. Applicants respectfully submit that one skilled in the art would not look to either the Jinguji reference or the Ram reference, as neither of these references relates to semiconductor crystal production, or even to creating numerically simulated profiles for controlling temperature. Jinguji relates to determining an unknown value in any type of control device, and simply mentions a temperature control device as one example of a device in which this determination of an unknown value may be made. Ram relates to analyzing system performance for furnaces by running furnace simulations—again, completely unrelated to semiconductor crystal production, or even to creating numerically simulated profiles to effect temperature control.

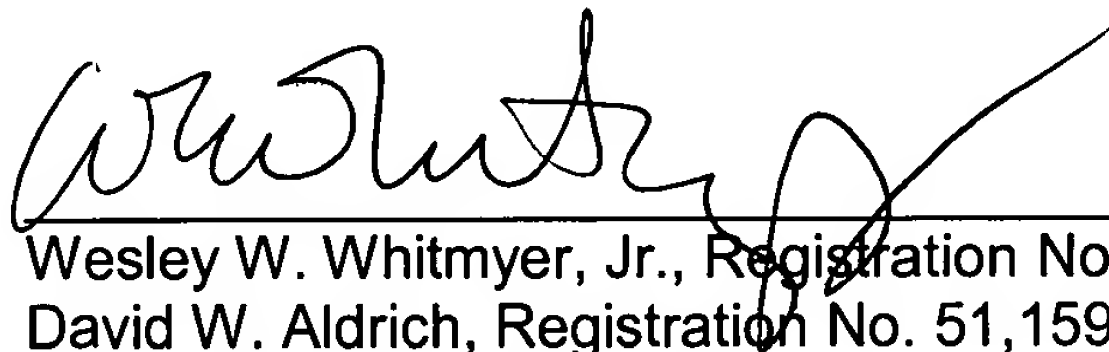
Regardless, even if one does make the aforementioned combinations, one does not arrive at the invention of claims 1, 23, 29, and 30. First, if one combines the Schmitz and Burmeister references with Jinguji, one does still not arrive at the invention of claims 1, 23, 29, 30. As the Jinguji reference explains under the heading “PURPOSE,” the invention of Jinguji—and the function of the simulation—is *detection* of an unknown variable parameter, not the *control* of temperature. While Jinguji indicates that the physical system 10 may relate to various types of control, including temperature control, the numeric simulation does not effect this control. The numeric model system 20 simply generates an output that is compared to the output of the physical system, such that an error is determined, and then variations are made in *the numeric model system 20* until there no longer is any error, and thus, the unknown parameter of the system 10 has thereby been determined. This is completely unlike the invention of claims 1, 23, 29, 30, where the simulations provide temperature variation profiles, which are used to control temperature. Jinguji does not disclose such use of numerically simulated profiles to ultimately exercise such control.

Similarly, if one further combines the Schmitz and Burmeister references with Ram, one still does not arrive at the invention of claims 1, 23, 29, 30. Ram discusses

running a simulation of a furnace in order to analyze system performance. While such modeling is perhaps useful for understanding and designing furnaces, it has nothing at all to do with generating temperature variation profiles for effecting control of temperature during the use of the system. Like Jinguji, Ram simply does not disclose the use of numerically simulated profiles to exercise such control.

It is respectfully submitted that claims 1-17, 19-25 and 29-56, all of the claims remaining in the application, are in order for allowance, and early notice to that effect is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Wesley W. Whitmyer, Jr.', is written over a horizontal line.

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